

**CALIFORNIA AIR RESOURCES BOARD**  
Assembly Bill 32 Technical Stakeholder Working Group Meeting

**REPORTING, VERIFICATION AND ENFORCEMENT**

June 3, 2008  
1:30 p.m. – 5:00 p.m.

Sierra Hearing Room  
2<sup>nd</sup> floor of the California Environmental Protection Agency (CalEPA)  
Headquarters Building  
1001 "I" Street, Sacramento, California

Note: The Sierra Hearing Room at CalEPA Headquarters has limited seating. The meeting will be webcast (<http://www.calepa.ca.gov/broadcast/>) and open to real-time questions via e-mail ([ccplan@arb.ca.gov](mailto:ccplan@arb.ca.gov)).

This meeting is part of an ongoing series of program design and economic analysis technical stakeholder meetings. These meetings provide interested stakeholders the opportunity to provide specific technical input concerning various elements of the program design developed to meet the requirements of Assembly Bill (AB) 32. Previous stakeholder meetings have covered specific design issues involving market-based measures. These issues have included rules for offsets and modeling the use of offsets in a cap-and-trade program; analysis of non-economic impacts, such as environmental justice and reductions in co-contaminants; containing the costs of allowances; and program evaluation criteria.

This meeting will focus on the reporting, verification, and enforcement concerns stakeholders may have for the implementation of market-based greenhouse gas emission reduction mechanisms under AB 32. The attached white paper considers two such mechanisms, "cap and trade" and a carbon fee. The mechanics of these two options have been explored in earlier program design stakeholder meetings.

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**AGENDA**

- A. Opening Remarks
- B. Air Resources Board (ARB) Staff Presentation: “Reporting, Verification, and Enforcement Developments Under a Market-Based Emission Reduction Program”
- C. Round-Table Discussion
  - 1. Should reporting and verification periods be shorter than compliance periods?
  - 2. What other changes would need to be made to the existing reporting and verification procedures created by the 2007 Greenhouse Gas Reporting Regulation to accommodate a cap-and-trade system?
  - 3. How should ARB set penalties for failure to surrender sufficient allowances or offsets to match verified emissions?
  - 4. How should ARB best implement the enforcement provisions of section 38580 against violations resulting from electricity imports or the purchase of offsets from out-of-State entities?
  - 5. How should ARB contend with potential manipulation in credit trading markets?

## **FRAMEWORK FOR DISCUSSION**

### **Overview**

The June 3, 2008 Program Design Technical Stakeholder Working Group meeting is part of ARB's effort to design market-based mechanisms which meet the criteria set forth in AB 32. The meeting will focus on the reporting, verification, and enforcement features that may be needed to implement two such market-based measures, cap-and-trade and carbon fees. This white paper begins with a brief overview of market-based measures. It explores five issues involving a cap-and-trade program, and determines whether each issue also arises under a carbon fee approach. Finally, the paper reviews recommendations made to ARB and provides examples of other cap-and-trade programs.

Earlier stakeholder meetings have discussed many options for design features for market-based measures. These include allocations of allowances, cost containment, the use of offsets, and non-economic effects. For the June 3 meeting, ARB is asking stakeholders to avoid renewing the debate over which design features are optimal. Instead, ARB requests that stakeholders identify advantages and disadvantages of particular reporting, verification, and enforcement procedures for any options of interest. To keep the discussion focused, ARB further requests that stakeholders begin their comments by clearly identifying the design options that they are addressing, or whether they believe their comments address all the options available.

The first step in implementing a cap-and-trade system for carbon emissions is to use the quantification and reporting procedures in the ARB Regulation for the Mandatory Reporting of Greenhouse Gas (GHG) Emissions to establish a baseline, or initial level of emissions, for every facility or entity within the capped sectors. Initially, ARB would distribute "allowances" to emitters<sup>1</sup> in the capped sectors equal in sum to the state-wide cap. The number of allowances allocated would decrease as the California-wide cap is reduced in each subsequent compliance period. Emitters would meet the cap by surrendering allowances at the end of each compliance period equal to their actual emissions. These could be obtained by direct allocation, purchase in an auction, or purchase from another capped facility. They may also be able to purchase "offset" reductions from entities not included in the capped sectors. As programs develop at the federal or regional level, interstate sales of allowances or offsets may emerge.

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<sup>1</sup> This paper will use the term *entities* to refer to those responsible for facility compliance. Except for *entities* involved in electric power transactions (retail providers and marketers), reporting and verification are done at the *facility* level, and it is anticipated that allowances would be held by facilities under a cap-and-trade system.

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A carbon fee is assessed on fuels or actual emissions during a compliance period. The fee would be set at a level to bring the State into compliance with the 2020 goal. For the program to qualify as a fee under California law, the fee revenues must be spent on program implementation or reductions in carbon emissions.

Implementing either cap-and-trade or a carbon fee approach is likely to require additions and changes to ARB's mandatory reporting regulation so that all necessary information is acquired. For example, there may be a need for reporting by lower-emitting sources within capped sectors or in sectors brought into cap-and-trade at a later time. In addition, rules governing the frequency of emissions reporting and verification may need to be revisited to address the desire for stability in the market for allowances and offsets. The purpose of the June 3 workshop is to begin to raise such issues and collect input on related issues as ARB evaluates market mechanisms.

## **KEY QUESTIONS FOR DISCUSSION**

### **Should reporting and verification periods be shorter than compliance periods in a cap-and-trade system?**

ARB is evaluating compliance periods as long as three years under a cap-and-trade program.<sup>2</sup> Capped facilities and entities would have to reconcile their verified emissions with the number of allowances surrendered at the end of the compliance period. ARB is also considering variable-length and overlapping compliance periods to prevent a surprise shortage of allowances at the end of a compliance period. Under the ARB Mandatory GHG Reporting Regulation, reporting is required annually, and verification either annually or every three years. For the June 3 stakeholder workshop, ARB is interested in stakeholder opinions on the value of making reporting and verification periods shorter than compliance periods, for example, quarterly or semiannual reporting with an ongoing verification process.

A shorter period would make information available on the extent of actual reductions, preventing surprise shortages of allowances at the end of the compliance period. Information on reduction activity might also be provided by overlapping compliance periods for different entities. A shorter reporting and verification period could encourage more rapid adjustment of prices for traded allowances and offsets and decrease opportunities for market manipulation. For these advantages to be realized, the reported and verified data would have to be

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<sup>2</sup> The ARB held a Stakeholder meeting on April 25, 2008 to discuss options on length of compliance period. For the white paper and public comments on this issue please see <http://www.arb.ca.gov/cc/scopingplan/pgmdesign-sp/meetings/meetings.htm>

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made available to all market participants. For example, ARB could publish a database on allowances and offsets used for compliance, generation of offsets, reduction requirements, and violations and penalties for all entities covered by AB 32.

More frequent reporting and verification is likely to result in additional costs for compiling in-house emissions reports and contracting for consultants and verifiers. Cost estimates provided to ARB by stakeholders indicate that these costs would be minor. ARB welcomes any additional cost information stakeholders could provide. More frequent reporting and verification would raise costs for facilities reducing emissions for their own compliance needs. Those facilities planning to generate surplus reductions for sale as offsets or allowances could pass most of the additional costs on to purchasers.

This issue would not arise under a carbon fee regime. Entities and facilities gain no market information from frequent reporting and an annual cycle of reporting, verification and fee payment appears to be adequate.

**What other changes need to be made to the existing reporting and verification procedures in the 2007 Greenhouse Gas Reporting Regulation to accommodate a cap-and-trade system?**

ARB's current mandatory reporting regulation may have to be modified to allow for complete facility-level accounting of emissions and allowances. Some facilities only report stationary combustion emissions, while a full accounting may require reporting of process and fugitive emissions. ARB would have to extend reporting procedures to cover these emissions. In addition, ARB would have to be able to distinguish between real changes in emissions and inventory changes resulting from modifications to reporting mechanisms.

For facilities not currently covered by the regulation, or those in uncapped sectors that may wish to develop offset projects, emission quantification methods will need to be identified and developed before a baseline could be established. This could affect a large number of entities if ARB expands the scope of a cap-and-trade market to sectors such as transportation fuels and residential and commercial fuel use.

Implementing market-based measures would also require resolution of emission attribution issues. For example:

- Some products containing GHG are used by other industries in their production process. This "transfer" of GHG raises a "point of regulation" issue. That is, who should be responsible for reporting the creation of the

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GHG, the facility producing the product containing the GHG or the facility using it and actually releasing it?

- The GHG Reporting Regulation allows for less costly reporting and verification procedures for some smaller emitters. Additional reporting requirements may be needed for these sources under a cap-and-trade regime.
- Arrangements must be made for new emitters that enter production after a compliance period has begun. The ARB regulation requires new facilities to report following their first full calendar year of operation in California.
- The attribution of emissions for imported electricity and cogeneration facilities, discussed during development of the reporting regulation, will need to be resolved.

ARB is asking stakeholders to help identify areas in which modifications or extensions must be made.

These same issues would also arise under a carbon fee.

**How should ARB set penalties for failure to surrender sufficient allowances or offsets to match verified emissions?**

AB 32 enforcement provisions are modeled after the penalty structure for stationary source violations, i.e., any violation of any part of the regulations ARB adopts under AB 32 is punishable, regardless of intent or location of the violation, including out of state violators. Within this authority, ARB has authority to compute the daily penalty calculation under Health & Safety Code (HSC) 38580(b)(3).

A precondition for a cap-and-trade system is a rigorous enforcement system, including a system of penalties sufficient to deter noncompliance. Regardless of how penalties are set, noncompliant entities or facilities would still be required to submit sufficient allowances for the compliance period.

ARB seeks input on the criteria it should use to compute daily penalty calculations within the context of a yearly or triennial compliance period.

These issues do not arise under a carbon fee regime beyond failure to pay the carbon fee.

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**How should ARB best implement the enforcement provisions of section 38580 against violations resulting from electricity imports or the purchase of offsets from out-of-State entities?**

ARB would control the allocation and retirement of allowances based on emissions limits on the capped sectors in California. However, ARB is considering proposals to allow California entities limited use of offsets and allowances from the Western Climate Initiative (WCI) region. In this situation, entities regulated in California could be responsible for surrendering out-of-state offsets or allowances to cover emissions from the generation of electricity imports.

ARB has legal authority to address violations associated with out-of-state allowances or offsets used for compliance in California. ARB seeks input from stakeholders on issues they have concerning enforcement within the context of a regional cap-and-trade system.

Some have suggested that uncertainties associated with out-of-state offsets could be addressed by ARB requiring a surety mechanism (bond) for each offset used by California entities. Since California would only allow the use of verifiable offsets, a bond would only be needed if problems arose with the verification process.

These issues do not arise under a carbon fee regime.

**How should ARB contend with potential manipulation in credit trading markets?**

With or without ARB support, private exchanges are likely to create exchange markets for trading offsets and allowances. These would likely include market participants with and without compliance obligations. Many stakeholders have expressed concern that speculative activity could lead to market instability or price gouging of entities or facilities needing to purchase allowances or offsets. ARB has four main options available, each representing a different level of intervention in the trading markets.

The first option, which is the most restrictive approach, would be for ARB to rely on administrative mechanisms to control registration and trade of allowances and offsets. There would be no market as such; ARB would have to approve all transfers.

The second option is at the other extreme, with no involvement by ARB in trading. ARB could endorse the development of markets for allowances and offsets and secondary markets for financial instruments based on allowances

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and offsets. These markets would be conducted by existing private exchanges. Under normal market conditions, the potentially large number of market participants would limit price fluctuations. The market operational rules of the exchanges themselves would reduce the potential for manipulation. Once private exchanges develop futures markets, federal oversight agencies such as the Commodity Futures Trading Commission (CFTC) could also become involved.

The two remaining options represent hybrids of the two above. In option three, ARB could support the development of private exchange markets but seek legal authority to monitor transactions, investigate price spikes and investigate other evidence of strategic behavior in the markets. In option four, ARB could create a market entity, similar to the ETAAC recommendation to form a Carbon Trust, which could reduce the potential for manipulation by tracking prices in private exchange markets and selling or buying offsets or allowances.<sup>3</sup> This entity would not serve in the “market maker” role others have envisioned for a Carbon Trust, but could serve to reduce short-term price spikes which could result from market manipulation.

These issues do not arise under a carbon fee regime.

**SUMMARY OF RELATED ACTIVITIES, RECOMMENDATIONS TO ARB AND PRECEDENTS**

**Related Activities:**

*Western Climate Initiative*

The Western Climate Initiative is a collaborative effort by seven U.S. states and three Canadian provinces to develop regional strategies to address climate change. In March 2008, the WCI released Initial Draft Program Reporting Recommendations, followed by specific recommendations on May 16, 2008.<sup>4</sup> The recommendations balance the need for a consistent region-wide approach to reporting and verification with the need to respect regulatory structures already in place in member jurisdictions.

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<sup>3</sup> Economic and Technology Advancement Advisory Committee, “Recommendations of the Economic and Technology Advancement Advisory Committee: Final Report: Technologies and Policies to Consider for Reducing Greenhouse Gas Emissions in California,” February 11, 2008, [HTTP://www.arb.ca.gov/cc/etaac/ETAACFinalReport2-11-08.pdf](http://www.arb.ca.gov/cc/etaac/ETAACFinalReport2-11-08.pdf), pp. 2-3 to 2-7.

<sup>4</sup> Western Climate Initiative, “Draft Program Reporting Recommendations,” March 31, 2008, <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F16572.pdf> . Western Climate Initiative, “Draft Design Recommendations on Elements of the Cap-and Trade Program,” May 16, 2008, <http://www.westernclimateinitiative.org/ewebeditpro/items/O104F17390.pdf> .



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The WCI supports the use of The Climate Registry (TCR) as infrastructure, the use of third party verifiers or verifiers from jurisdictional entities, and inclusion of emitters beyond those initially proposed for inclusion in cap-and-trade systems.

**Recommendations to the ARB:**

*Market Advisory Committee*

The Market Advisory Committee (MAC) Final Report endorses a “first-handler” role for ARB in the reporting and management of emissions data under a cap-and-trade system.<sup>5</sup> The MAC also recommends that ARB consider lower cost reporting and monitoring systems for smaller businesses. To make the system transparent to all market participants, ARB should acquire and release the reporting data on a quarterly basis. The reporting, verification, and compliance approach should sufficiently ensure the environmental integrity of reductions so that California’s system could eventually be linked to other national programs.

The MAC also offered recommendations for market monitoring and penalties for noncompliance. ARB should monitor transfers through a tracking system based on assigning serial numbers to all allowances and offsets. Entities and facilities would have firm deadlines for reporting and surrender of allowances and offsets. In addition to financial penalties, ARB should consider requiring noncompliant facilities and entities to surrender an extra number of allowances in addition to allowances matching their emissions.

*Economic and Technology Advancement Advisory Committee*

The Economic and Technology Advancement Advisory Committee Final Report recommended the creation of a Carbon Trust to serve in a “market-maker” role within a cap-and-trade system.<sup>6</sup> The Trust would serve to limit price fluctuations as well as promote new reduction technologies, projects resolving environmental justice issues, and generally support the development of a stable market for allowances and offsets. The Trust could also serve as a “shock absorber” by buying allowances when prices are low and selling when prices are high. In the role envisioned by ETAAC, the Trust could be a public entity or a joint public-private effort.

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<sup>5</sup> Market Advisory Committee, “Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California,” June 30, 2007, [http://www.climatechange.ca.gov/publications/market\\_advisory\\_committee/2007-06-29\\_MAC\\_FINAL\\_REPORT.PDF](http://www.climatechange.ca.gov/publications/market_advisory_committee/2007-06-29_MAC_FINAL_REPORT.PDF) .

<sup>6</sup>Economic and Technology Advancement Advisory Committee, “Economic and Technology Advancement Advisory Committee (ETAAC) Final Report: Technologies and Policies to Consider for Reducing Greenhouse Gas Emissions in California,” February 11, 2008. <http://www.arb.ca.gov/cc/etaac/ETAACFinalReport2-11-08.pdf>

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**Examples of Reporting, Verification and Enforcement Procedures:**

*European Union Emission Trading Scheme (ETS)*

The EU implemented the ETS under a principle of “subsidiarity” which respected each member state’s right to establish a national plan to implement the system and to designate “competent authorities” to establish permit limits, verify emissions, inspect facilities, and enforce penalties. The result was a lack of uniformity in implementation over the scheme’s first two phases. The European Commission expects Phase Three to result in a much more centralized system with uniform procedures across member states. The EU ETS requires reporting and verification of major stationary source emissions on a facility (“installation”) basis, with verification performed by EU-accredited third-party verifiers. The EU’s experience supports the need for uniform procedures across states if a regional cap-and-trade market is to both preserve the environmental integrity of allowances and offsets and to provide minimum cost compliance.

*Regional Greenhouse Gas Initiative (RGGI)*

Ten northeastern states have established a CO<sub>2</sub> Budget Trading Program for electricity generators using a cap-and-trade regime.<sup>7</sup> The program uses three-year compliance periods. For the first six years, beginning in 2009, the cap will be set to hold emissions constant. The cap will then decline 2.5% per year in each of the next four years. The program designers believe that the gradual decline in the cap would provide price signals to direct investment in control equipment without disrupting electricity rates. Complying facilities would install monitoring units and report emissions annually. Member states may still require facilities to establish an emissions monitoring plan in addition to complying with the allowance requirements.

The program would allow the use of offsets from projects outside member jurisdictions if the offsets meet two requirements designed to ensure additionality. To be eligible, the offsets would have to be located in a state in which the regulatory authority has a memorandum of understanding (MOU) with a regulatory agency in a RGGI member state. The MOU would ensure that the project meets additionality requirements beyond a business-as-usual scenario. The MOU would also require annual monitoring reports by accredited independent verifiers.

*Acid Rain Program*

The US EPA Acid Rain Program was established by Title IV of the 1990 Clean Air Act Amendments. It covers 2,000 sources of sulfur dioxide, primarily power plants. The tracking system used by the Acid Rain Program could be adapted for use in a California cap-and-trade program. The Allowance Tracking System

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<sup>7</sup> Regional Greenhouse Gas Initiative, “Overview of RGGI CO<sub>2</sub> Budget Trading Program.” [http://www.rggi.org/docs/program\\_summary\\_10\\_07.pdf](http://www.rggi.org/docs/program_summary_10_07.pdf)

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(ATS) contains two types of accounts. The *unit account* is established for facilities with compliance responsibilities. It tracks balances and all transfers reported to EPA. Facilities' actual emissions are monitored in real time and reported into the Emissions Tracking System (ETS). These emissions are deducted from unit accounts. *General accounts* can be established by entities without compliance obligations, such as brokers. The ability of the ATS to serve as a model for a California tracking system may be limited because the emissions to be deducted from allowance balances are verified in a comparable manner through continuous emissions monitoring systems. This type of monitoring would not be possible for the more numerous, diverse, and complex sources under a California cap-and-trade system. In addition, the number of allowances and entities involved is much smaller in the Acid Rain Program.

Acid Rain allowances are also traded on private commodity exchanges. Some of these platforms have regulatory oversight by the CFTC, which provides another level of market oversight beyond U.S. EPA's tracking activities. The Federal Energy Regulatory Commission also has oversight responsibility since the complying facilities are power plants.